

**Development of Fishing Industry Cooperative Research Fleets:
Industry-Based Survey and Study Fleets
Workshop Results
April 11-12, 2001**

Introduction:

A two day workshop was convened on April 11 and 12, 2001 by the National Marine Fisheries Service, Northeast Regional Office. The goal of the workshop was to examine the process of design and implementation of two fishing industry participatory cooperative research fleets: a study fleet and an industry-based survey fleet. This workshop followed a series of 7 NMFS funded public meetings held along the New England coast and convened by the Gulf of Maine Aquarium Development Corporation. The purpose of those public meetings was to bring fishing industry participants and fishery scientists together to discuss various aspects of cooperative research, specifically, the use of commercial fishing vessels and crews to gather scientific information on fish populations, record oceanographic data, and collect detailed information on commercial fishing vessels' catch.

The workshop was attended by a diverse group of 48 people representing the fishing industry, federal and state governments, non-governments organizations, universities, and private consulting businesses, all whom are interested in New England groundfish cooperative research. A list of participants is presented in the appendix.

Cooperative Research Fleet Definitions:

Working definitions of the cooperative research fleets were established during initial days of the Gulf of Maine Aquarium one-day public meetings. The original concept of cooperative research fleets was modeled after the Canadian sentinel surveys. However, it became evident that the Canadian model was not a perfect fit for our fisheries and the following definitions were agreed on:

Study Fleets: A sample of fishing vessels from which high quality data on catch, fishing effort, gear characteristics, area fished and biological observations are collected. These vessels fish in "normal" commercial mode, and are selected to be representative of the larger fleet, over time.

Industry-based Survey: A scientifically-designed fishery research project to monitor the abundance and biological health of target populations of fish through the use of test fishing with specific gear(s) in specific locations.

Meeting Methods:

A presentation by Don Perkins (GOM Aquarium) was made to review the results of the 7 public meetings described above. There were two additional presentations, one each by Steve Murawski and Earl Meredith. These three presentations provided a basis for further discussions on the development of the two cooperative research fleets.

The participants were divided into two focus groups, one for each cooperative research fleet. The goal of the two groups was to discuss various issues that must be addressed in order to implement the two research fleets. Specifically, determine a strategy for and map out the next few steps in organizing and implementing these fleets. The following list of questions (though not intended as exhaustive) was presented to each focus group as a basis of discussions and to begin listing other important and specific objectives for implementation:

General to both Fleets

1. What should the mix of resources/infrastructure allocations be between the study fleet and industry-based survey? (This is a priority setting exercise)
2. Define the data acquisition systems, i.e., VMS versus laptop computers versus Palm Pilot type systems with cellular telephone data transfer, or other low cost, ease of use systems. Include discussions around cost and on-board logistics, i.e., 12 volt versus 110 volt requirement.
3. What will the data feedback system look like?
4. What are the specific objectives for this research? List priorities such as enhance stock assessments by providing finer-scale information on resources status, fill current survey voids, or provide faster data turn around time.

Study Fleet Specific

1. Define the study fleet design in terms of number of vessels from various gear sectors, vessel size classes, or other temporal or spatial stratifications. Who will be the main players? Consider all those concerned including but not limited to fishing vessels, scientists, data management and archiving.
2. List important variables or data that will be collected.
3. Define local and regional coordination among fishing vessels, scientists, data management centers, and other program managers.
4. Should a pilot study fleet be implemented? What time frame would be desirable for this pilot study? What specific objectives would be addressed by the pilot study?
5. Will observers be needed? How many? Can fishing crews be trained to perform these duties? Who will do the training?
6. What is the magnitude of the study fleet in terms of percentage of entire fleet, i.e., 10%-20%?

Industry-based Survey Specific

1. What will be the mix of funding or resource allocations among in-shore and off-shore surveys, fixed and mobile gear, and short term or narrowly directed survey issues such as the monkfish or scallop type (one off) surveys?
2. Define the industry-based survey in terms of stratification terms as defined above.
3. What role should States' Marine Fisheries Divisions play in industry-based surveys?
4. What role should Universities, fishermen's cooperatives, non-government organizations, etc. play in industry-based surveys?
5. Will observers be needed? How many? Can fishing crews be trained to perform these duties? Who will do the training?

Considerations on the Development of Groundfish Study Fleets

Dr. Steve Murawski, Chief of Population Dynamics Branch, Northeast Fisheries Science Center, facilitated the focus group concerned with the formation of the groundfish study fleet. The following presents a basic outline of the focus group results and recommendations.

The Perkins Report highlights both the need for improved fishery-dependent data for stock assessment and fishery management purposes, and the desire of fishermen to improve the quality of such data while at the same time reducing or minimizing the record keeping burden for such. Based on these principles, the workshop considered in detail how to structure a proposal for moving ahead with the concept and the specific issues to be addressed by this proposal. These issues and a proposed strategy for developing a pilot project are outlined below:

! What data do we want?

Study fleet projects in the Northeast region date back to the 1930s, when the Boston haddock fleet was sampled intensively to provide catch, effort, and biological sampling data to address fishery management needs. The concept was broadened to include the New Bedford yellowtail flounder fleet in the late 1940s, and this program developed into the region-wide “port agent” program implemented in the 1960s.

Workshop participants noted that data collected from a modern study fleet program would be relevant to a number of issues faced in fishery management:

! Improved Stock Assessments

Requires: landings weights by species
 Location of catch
 CPUE (Index of abundance)
 Discards
 Collection of biological samples (by market category)

! Analysis of Management Options

Requires: Catch & Effort by Gear/Port, Revenue & Cost data

! Determination of Impacts of Alternative Regulations

Requires: Economic and Social Data

In addition to potentially providing high quality information to address these issues, a study fleet program, if properly designed, can be used to:

! Improve Timeliness of Data Products, and

! Increase Dialog between industry/scientists/managers

Properly collected and distributed information can result in high quality data available in near-real time, and likewise, the cooperative development of the program and its requirements can help to bridge the communication gulfs that currently exist.

Based on discussions of workshop participants, it was apparent that initially the study fleets should concentrate on collecting data products relevant to biological assessments of the stocks (e.g., catches, catch locations, biological samples). As the project develops and proves it worth, the issue of collecting economic and social data could be revisited.

! Whom do we want to sample?

The current VTR (vessel trip report) system (logbooks) requires each permitted vessel to fill out and submit trip-by-trip data noting catch, location and other information. Although required by regulation, currently about 60% of these records can be used for the purposes of allocating catches (as documented in dealer reports) to the fishing area from which they were derived. Thus, this sample of VTRs is used to extrapolate the entire catch to location. Figures 1-4 illustrate the relationship between the numbers of vessels in the fleet and the cumulative catch of the 10 “large” species in the Northeast Multispecies FMP (cod, haddock, pollock, yellowtail, winter flounder, witch flounder, American plaice, windowpane, white hake and redfish). It is clear that for all significant groundfish gears (trawls, gill nets long lines) about 20% of the vessels account for 80% or more of landings. Thus, a 20% sample comprising study fleets in these gears will generate biological data for assessments that will be adequate for most purposes.

For all gears, there were 1,407 vessels that reported groundfish catches in VTRs in 1999. Thus a 20% sample would comprise 281 vessels. A 20% sample of reporting vessels by gear type would be:

Trawls: 767 total vessels, 153 in 20% sample
Gill Net: 264 total vessels, 53 in 20% sample
Long Line: 177 total vessels, 35 in 20% sample.

For the total of these three gears, there are only 1,208 participating vessels (i.e., 199 vessels reported groundfish in other gears or with no gear type identified); a 20% sample comprising a study fleet would represent 241 vessels. Thus, an adequate study fleet could be constructed comprising about 250 of these vessels.

! Census vs. Statistical Sample

Currently VTRs are required of all vessels, however, not all vessels submit timely reports, and there are numerous missing data or errors that render a significant proportion of the VTRs useless for high-quality fishery or biological analysis. As described above, a sub-sample of about 20% of the fleet could

gather information regarding about 80% of the groundfish landings. Obviously, this sample would have to be modified somewhat to account for the various high priority groundfish stocks within the complex (e.g., Georges bank haddock, cod, and yellowtail, Gulf of Maine cod and flounders, Southern New England flounders), but these modifications could be made within the overall structure of the study fleet.

Clearly there are other issues which may require collecting some data from all vessels (e.g. allocation issues, economic impact evaluations), but for biological assessments of the stock, a high quality subsample of participating vessels is sufficient for most problems of interest. If such a study fleet was developed, it is conceivable that data required of the whole fleet could be modified or reduced to accommodate this narrower set of uses.

! Stratifying the Fleet by:

! Gear Type

! Port

! Target Species/Mix, etc.

In the example above, the universe of participating groundfish vessels (for 1999) was subdivided into participants by gear type, etc. This stratification of the fleet may be important in tailoring the components of a study fleet to sample participation so as to get representative information of the species involved. For example, if Gulf of Maine cod is considered a priority stock, and about 40% of the landings of this stock are taken by fixed gear in Massachusetts ports, then the study fleet may have to be adjusted (increased numbers of vessels with this gear in the north shore Massachusetts ports) to achieve representative coverage. Keeping to a 250 vessel study fleet would, then, require that we have lower coverage elsewhere. These individual issues can be addressed as priorities for fishery sampling are developed.

! What are the characteristics of a modern study fleet program?

- Based on shared view of importance of data to the process

There is a growing recognition among fishermen, managers, regulators and scientists that improved quality and timeliness of fishery-dependent information is not only required in order to improve management of the stocks, but that such goals are feasible and achievable given our shared commitment to improving the situation. The example of the VTRs demonstrates how poorly conceived programs are developed and used without adequate input from the entities that have a stake in the outcomes. The study fleet proposal offers the opportunity to redesign the data collection program with input from these various stakeholders, utilizing voluntary rather than mandatory submission of detailed data (recognizing that some mandatory information will always be required from all participants). Development of this new data collection scheme must be done as an open process.

-Feedback loop to verify quality and note important interpretations and information

One unique aspect of study fleets that have been implemented in the past is the opportunity for dialog between fishermen and someone ashore who is responsible for data quality and assuring sampling requirements for data are being met. A significant component of any study fleet concept is assuring adequate shore-side resources (personnel, and related support) to support coordination, training, feedback to captains and crew, and liaison with the science and management communities. It is essential that participating fishermen/owners know that there is a staff assigned to assuring that samples are taken, data are collected correctly and that problems are handled expeditiously. In this regard, redefining the role of the port agents and other staff responsible for dock-side sampling is essential to the success of such a undertaking.

-Timely access and availability of individual and Fleet data

A persistent criticism of current procedures is their lack of timeliness in providing information to decision makers. Part of this issue is involved with the current reporting requirements, and part is the time-delays associated with handling paper records, accounting for late submissions, and dealing with backlogs of data. Any new concept must be structured to provide more timely access by both the individual fishermen and owners to their records (e.g. through a secure browser to a web-based data set), and to provide more timely information to managers. Currently, the management process itself does not require near-real time data, since regulations are developed many months in advance of the beginning of the fishing year. However, under the current data reporting requirements and handling systems, more timely in-season management cannot be supported even if it was contemplated. More importantly, it is currently difficult for scientists and managers to assemble data for biological and socio-economic assessments to meet the time constraints of various management regimes as they are.

- Electronic-to-Electronic Data Collection and Archival

Recent experiences in the region with electronic vessel tracking and associated data collection of catch data (e.g., the sea scallop fishery openings in closed areas, inshore lobster data collection in Maine) have shown that high quality, timely data can be collected, archived and disseminated using electronic means. These programs used VMS technologies for electronic logging of data, and some catch data reporting that was transmitted from the vessel to a database. This is clearly the future of data collection, since the quality of the data is improved, and the timeliness bottlenecks have been removed. It is an absolute requirement of a modern study fleet concept that these technologies be brought to bear, and the electronic collection of data aboard vessels writing to electronic databases be the cornerstone of the study fleet proposal. Clearly there is no unique technology solution to all the various fishery sampling problems we encounter. Thus, the development of a study fleet proposal should include a development phase to bring scalable technologies to the task, with emphasis on data products and performance requirements, and not necessarily on a limited set of certified platforms or services.

-Use of modern tools for data summary and interpretation, emphasizing transparency

Collection of electronic data on a haul-by-haul basis with automatic logging of vessel positions would provide very useful information for science and management. These data would also be of use to

individual fishermen and businesses, both on the individual basis and in comparison with the fleet. The workshop participants discussed data security and the dissemination of such data as they potentially impact fishing activities of individuals (e.g. confidentiality of data from individuals). It was agreed that access to an individual's information in a secure format would be desirable, and that reporting of aggregate study fleet at a coarser level of spatial resolution, with some time delay, was appropriate to protect individuals. These issues need to be explored in greater detail before a policy is developed.

-Integrate new programs with existing data collection efforts and other initiatives

NMFS and state fishery agencies currently devote considerable resources to the collection of fishery statistical and biological sampling data. Initiatives under development (ACCSP) will in some cases increase resources devoted to these tasks. The development of a new study fleet concept for collecting groundfish information must integrate with these existing programs to enhance, leverage resources, and avoid duplication. The shoreside component of data coordination, feedback and sample collection is a key element necessary to assure a successful program of study fleets. Without adequate shoreside resources devoted to the task, the concept cannot succeed.

! How can we structure incentives for industry, government and managers to participate?

Incentives to the Industry

! Interest in Improved management (no direct compensation)

Clearly, there is a great common incentive to improve the scientific (factual) basis for management, and fishery scientists in the region have identified improved fishery-dependent data as the first priority in improving fish stock assessments. Apart from this common incentive to develop a better program for collecting these data, various specific incentives were discussed:

! Direct and Indirect Compensation Packages

Workshop participants discussed the types of direct and indirect compensation packages that could be developed to encourage initial and continued participation in the program. One clear potential incentive is to provide electronics and messaging services, that could be used for other boat purposes, that would provide ongoing benefits to participants. Additional direct payments for such services as providing sorted samples (e.g. totes of fish by market category) are potentially available as incentives. However, before specific proposals are made, more full vetting of various options and their feasibility would be required.

! Relief from Existing Paperwork or other Requirements

Currently groundfish fishing vessels are required to complete VTRs as well as participate in call-in/out or DAS monitoring programs. If one product of the study fleet provides secure data with which to monitor compliance with these programs, then reducing the regulatory burden on these vessels by eliminating redundant information seems appropriate. Developing a proposal for such regulatory relief for study fleet participation will require input from policy, enforcement and Council concerns.

Incentives to Government & Managers

Managers, scientists and fishery analysts have a great incentive to participate in enhanced data collection activities, but there are constraints on the ability to participate determined by staffing, budgets and time. Clearly, making this program a priority will require a combination of new and reprogrammed resources, and specification of these resources is an important element of the proposal.

Overall, the incentives to government and managers to participate include:

- ! Leveraging Existing Programs,
- ! Improving Data Quality, and
- ! Improving Communication with Participants.

General Comments:

Workshop participants emphasized that the first priority of study fleets should be the collection of high quality biological and catch sampling data, with social and economic data collection to potentially be added at a later date.

Participants also emphasized that, with respect to biological sampling, that shoreside coordination was critical to the success of the program, that adequate and ongoing training for participants was critical, and that collection of biological samples at sea by market category was likely a feasible strategy.

As for study fleet participants, it was proposed that initially a very few participants be included in a pilot program to develop the concept and the supporting resources necessary to maintain an expanded program. Initially, the new program should run in parallel with exiting data collection strategies to allow comparison of quality, timeliness and cost effectiveness.

For many small vessels, groundfishing is only one of several activities engaged in during the year. In order to get an overall picture of the significance of groundfish in the mix of fisheries, that all fisheries in which study fleet participants engage should be sampled. This would provide information on the seasonality and factors involved in fishery switching behavior.

Eventually, the “latent effort” component in groundfish may become an important element in the fishery.

The study fleet concept should be established with some understanding that vessels may enter and exit the study, and that this may be required if significantly greater participation by “latent” vessels occurs.

Several specific ideas for data to be collected by the study fleet participants included estimation of discards using three existing modes for discard sampling (qualitative comments by captains regarding discarding, quantitative estimates by captains, and scientific data collected by trained observers). Other data options include a comment section to be filled out by captains noting unusual biological phenomena, comments about catches and observations about the fleet, and environmental data, which might be logged automatically.

A Proposal for Moving Ahead:

Workshop participants supported the idea of developing a proposal for a pilot program of groundfish study fleets. The proposal should be developed by a small team drawn from the scientific community, fishing industry, technology industry, fishery management team and fishery enforcement. The team should flesh out issues related to:

- study fleet participant selection
- technology and data specifications and development
- policy issues related to incentives, regulatory requirements and data security and access
- communication strategy (with the industry, regulators, and others)

It was felt that a proposal for the pilot project could be developed and documented in 90 days.

1999 annual catch of 10MS by vessel
all gear types

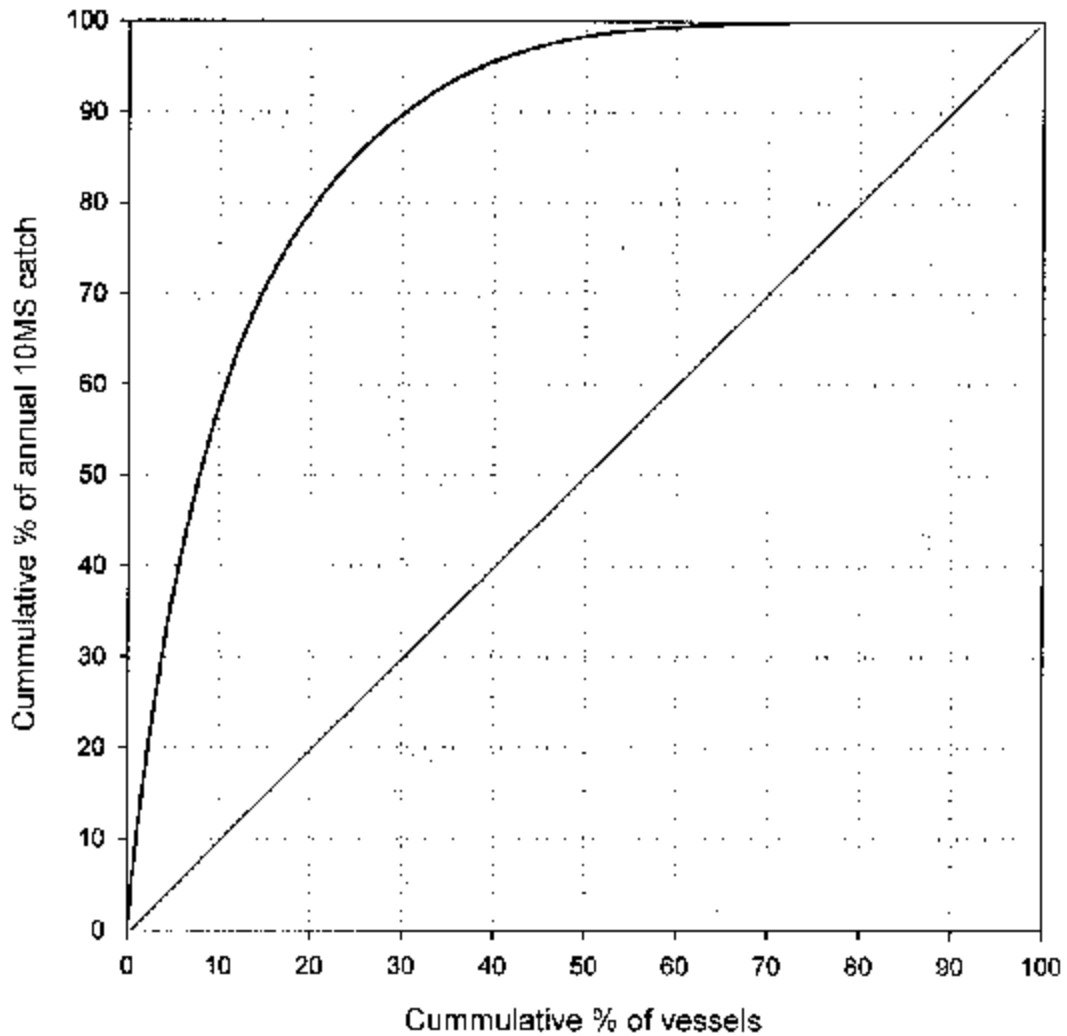


Figure 1. Relationship between cumulative percent of all vessels reporting groundfish catches and total cumulative multispecies groundfish landings for the New England groundfish fleet in 1999. All gear types are included.

1999 annual catch of 10MS by permit
otter trawl gear

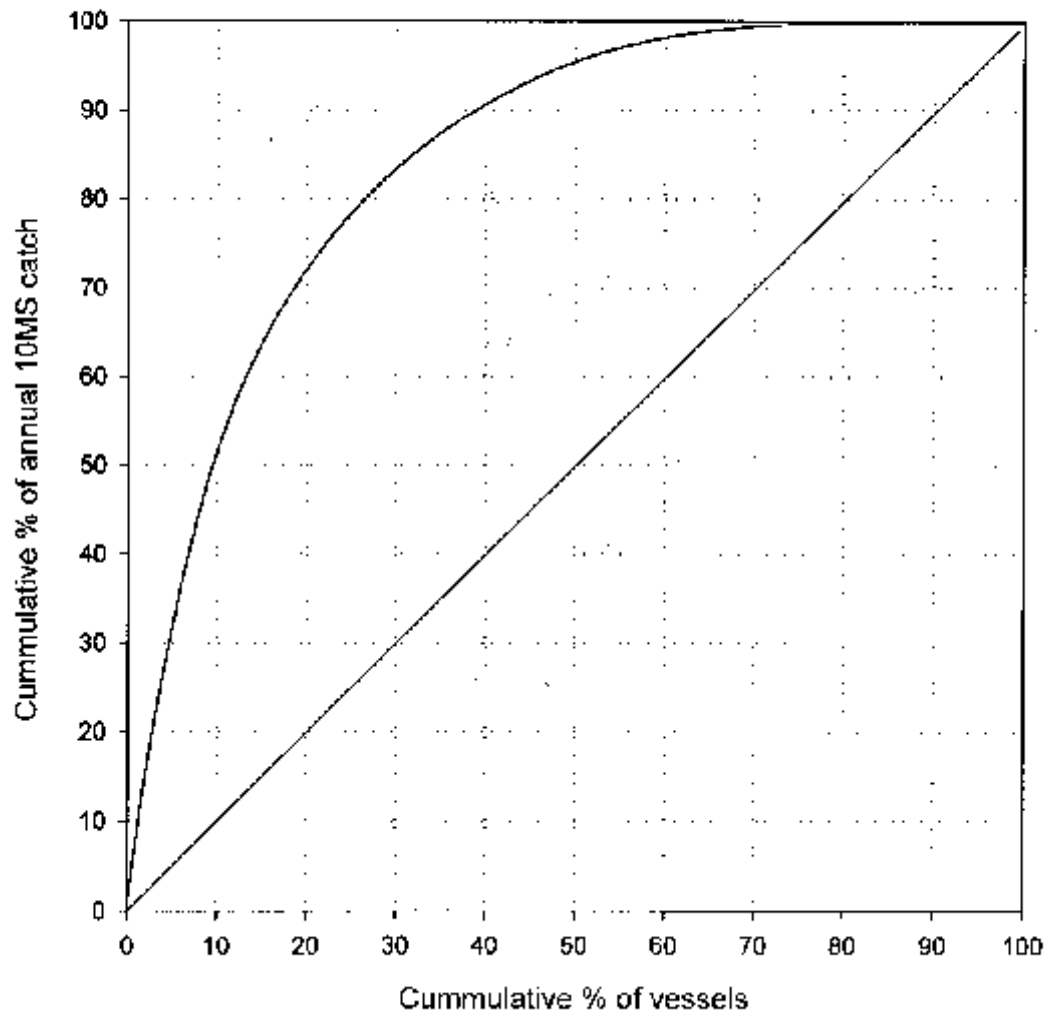


Figure 2. Relationship between cumulative percent of all vessels reporting groundfish catches and total cumulative multispecies groundfish landings for the New England groundfish fleet in 1999. Only otter trawlers are included.

1999 annual catch of 10MS by permit
gillnet gear

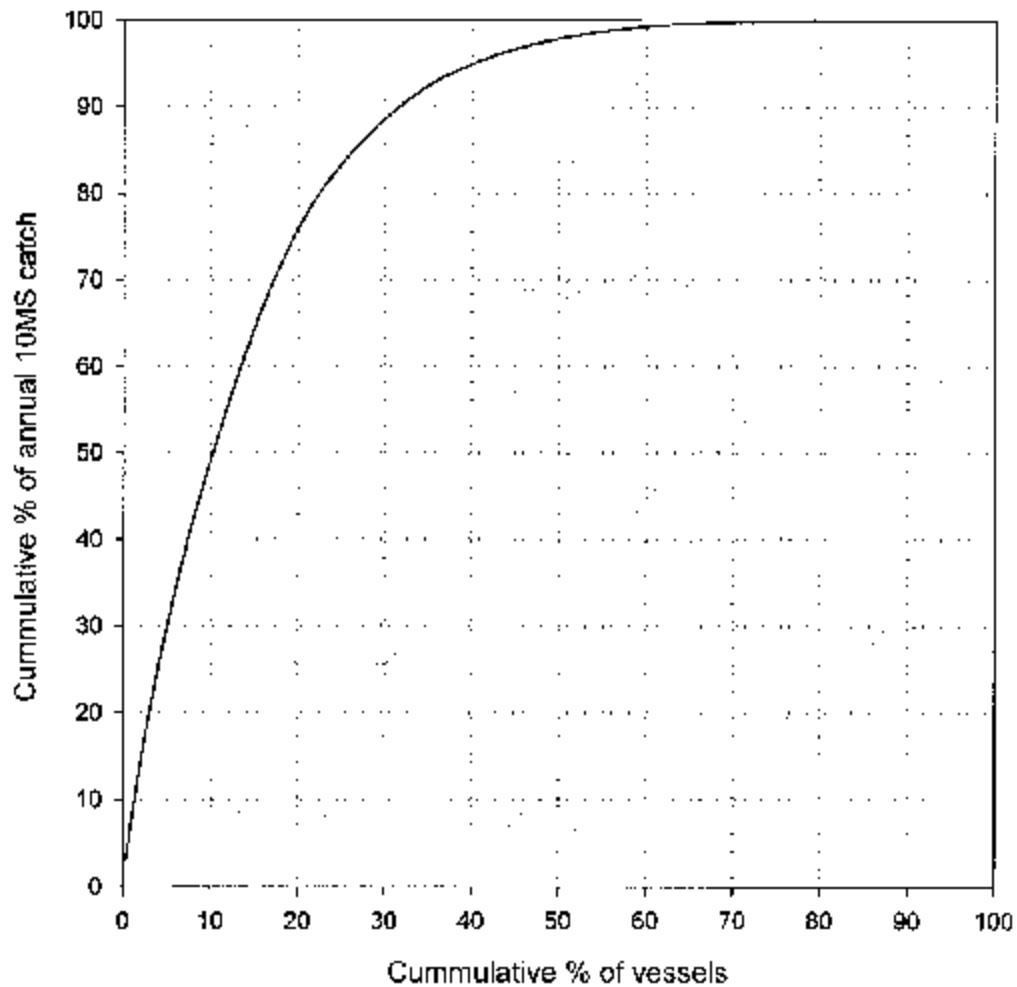


Figure 3. Relationship between cumulative percent of all vessels reporting groundfish catches and total cumulative multispecies groundfish landings for the New England groundfish fleet in 1999. Only gill netters are included.

1999 annual catch of 10MS by permit
longline gear

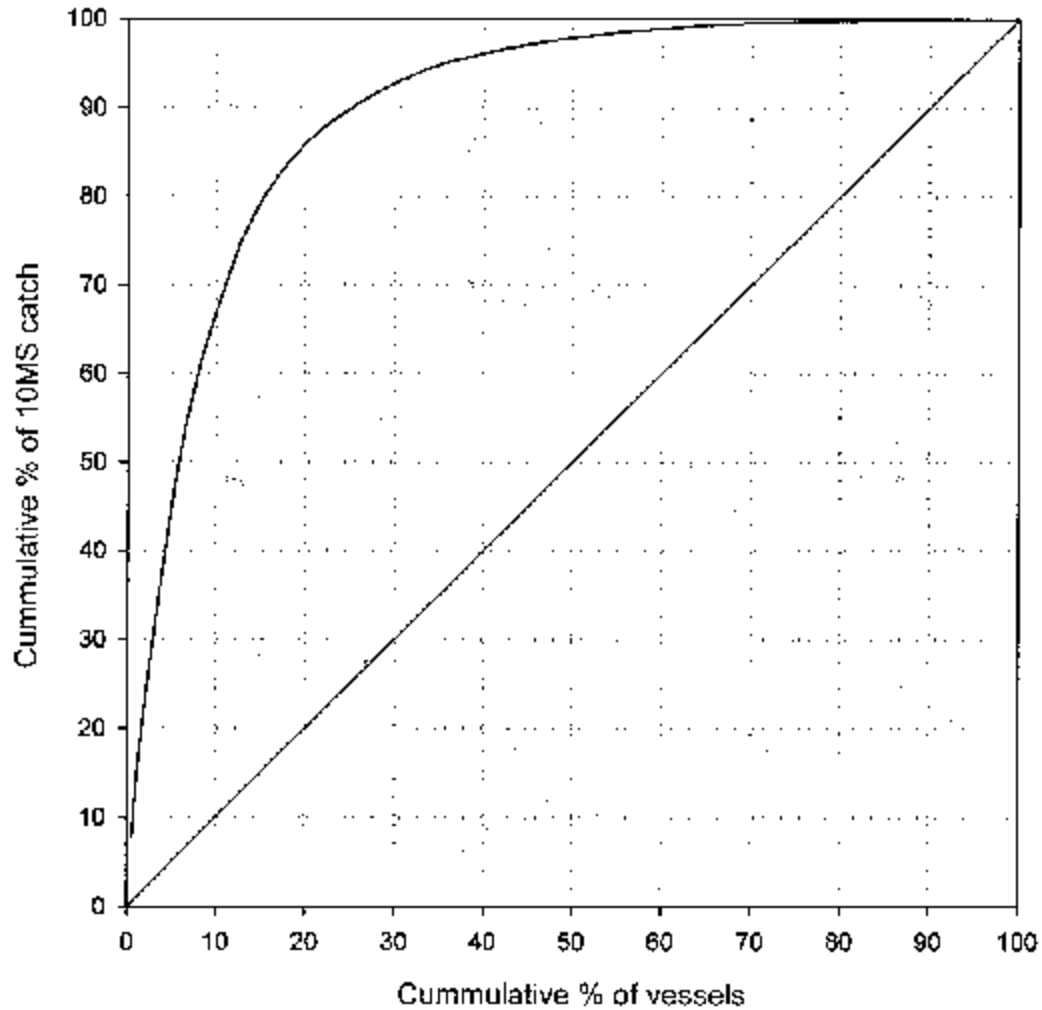


Figure 4. Relationship between cumulative percent of all vessels reporting groundfish catches and total cumulative multispecies groundfish landings for the New England groundfish fleet in 1999. Only long liners are included.

Considerations on the Development of Industry-Based Survey Fleet

Earl Meredith, Acting Director - Cooperative Research Programs, facilitated the focus group tasked to consider development of the industry-based survey. The following presents the results and recommendations of this group.

Goals and Objectives

All participants in this group who represented the fishing industry concurred that cooperative research is an investment in their future. Everyone agreed that collaboration among the fishing industry, scientists and managers will increase communication, understanding and instill confidence in the scientific and fishery management process.

The need to establish short and long term goals is critical in the process of creating a cooperative research fleet centered around industry-based surveys. The group discussed three primary objectives for establishing an industry-based survey fleet:

First, it was generally felt that the NMFS trawl survey has voids in its temporal and spatial sampling resolution. The Perkins report discussed the industries intense interest in increasing survey coverage in shallow coastal waters and that theme was clearly restated and emphasized by this group. The group focused their discussion on an In-shore or “near shore” survey. There was however, discussion around forming short term surveys that focus on specific species such as the monkfish or scallop surveys conducted in the past 2-3 years using commercial fishing vessels.

Second, the group agreed that initial surveys may be species specific. Interests in cod or haddock surveys were expressed, but there was general agreement that it is difficult to target single species. A primary objective, tracking seasonal migrations of all groundfish aggregations in near-shore areas, was discussed. Along this theme, the group agreed that conducting survey sampling in and adjacent to Closed Areas is imperative to allow an evaluation of their effectiveness.

Third, based on particular objectives, there was general agreement that a long term time series may not necessarily be needed to draw conclusions. However, to determine relative trends in presence, absence and abundance from year to year, there must be some level of consistent sampling using standardized methods and fishing gear. Changes in gear or methods will require calibration studies over sufficient time to allow appropriate conversion factors to be determined. The initial work in forming the industry-based survey fleet will serve as a prototype for building future time series data bases.

Additionally, the survey may provide sampling platforms that will allow ancillary studies such as habitat characterization or mapping, groundfish tagging and collection of specimens for genetic stock identification, and fishing gear engineering trials. These objectives were considered as secondary to the primary goals, but it was agreed that the industry-based survey fleet should compliment the other cooperative research programs. The group agreed that it is very important to establish efficient communication and coordination among cooperative research participants.

Survey Methods Considerations

The group felt strongly that it is important to define specific objectives of localized near shore surveys and determine appropriate methods including sampling gear, locations, and frequency. It was generally agreed that the initial work should start out small and simple, thus maximizing the success of this fleet.

The sample methods must consider seasonal variation of species abundance and habitat.

The industry is uncomfortable with the sampling methods used by NMFS, i.e., random stratified sampling design.

Use a mixed of fishing gear that sample a broad range of habitats and species. Establish standardization in temporal and spatial sampling designs, sampling gears, measurements, and data reporting.

Prioritize survey areas based on landings data over the years.

Focus sampling on familiar areas or well known “fishing grounds” - maximizes already known information

Have fishermen identify sampling areas and tracks or transects that they know are most appropriate for fixed gear versus mobile gear methods

General agreement that a data management and sharing system be created.

Create “formal structure” for coordination, management, and logistical support. (State, Federal, NGO, and fishing industry). [Industry survey fleet steering committee] Create a dynamic, flexible, and “overarching” committee that will evolve over time. The committee must be small in size and should not exceed 10, but it was recognized that it may be difficult to include all critical concerned groups. Local subcommittees or “Spin-off” groups to coordinate fishermen and scientists and provide logistical support.

Workshop Summary

The workshop was summarized by Dr. Mike Sissenwine, Director of the Northeast Fisheries Science Center. The follow presents a basic outline of the summary he presented.

He began by stating that “We have a problem and an opportunity.”

Problems

In general, the problems reside mostly as data issues:

1. Data quality - no one believes or defends the vessel trip report (VTR) data.
2. Data timing - when changes occurs, boats on the water often know it long before it appears in the databases.
3. Data type - very little information exists on spawning, migration, and fine-scale temporal and spatial resolution of fish stock structures.
4. Coverage of data - there are needs to both offshore and inshore surveys. The workshop group addressing industry-based survey generally agreed that an initial effort should focus on a “near-shore” survey. After a year or two of experience and successes, the industry-based survey should then expand to offshore areas like Georges Bank.
5. Communication - the lack of continued communication among scientists and the fishing communities lead to general misunderstanding of fishery science and an eventual mistrust on the behalf of the fishing industry. Additionally, from scientists’ point of view, there are issues such as social and economic problems that are not fully understood and lead to further complicate the communication situation.
6. Inefficient biological sampling issue - for age and growth studies, we often end up with a large number of fish in a compressed length distribution. What is needed is a broader range of size classes of fish for length at age modeling. What is needed is greater communications between the fishing vessel and port sampling personnel that will lead to requests of specific species and lengths from vessels fishing in particular areas. This can be facilitated by an efficient communications systems of radio or e-mail (BoatTracs type system) which allows port samplers to monitor locations of study fleet participants and make requests of samples. This “Pin-point” biological sampling approach would be of great value.
7. Inefficient record keeping - many fishing vessel captains maintain a separate record, aside from their VTR, of their catch for their own purposes. As participants in cooperative research fleets, they could simplify their record keeping by utilizing a single electronic data logging device. This could replace there requirement to filing a VTR. Initially, these electronic data systems could be offered as incentive to participate in cooperative research fleets.

Opportunities

In light of the problems list above, there are numerous factors which make this a time of great opportunities. The following is a list identified factors which may contribute to the success of cooperative research programs:

1. Motivated people - industry, federal government, state agencies, councils, academic institutions, and non-gov. organizations are all motivated and inspired to get involved in cooperative research.
2. Flow of Ideas - there have been a stream of innovative ideas from the fishing industry to be involved in direct sampling. There is a real need for high resolution sampling in temporal and spatial dimensions

to refine closed areas. Given the limitations of the N.E Fishery Science Center to sample at a desired intensity, the opportunity to use fishing vessels as sampling platforms is exciting to both the industry and scientists.

3. Available Technology - In recent years, information technology has advanced tremendously. Systems for web based data acquisition and retrieval, i.e., individual vessel files (private accounts much like web banking) are currently under development. Global Positioning Systems (GPS), Vessel Monitoring Systems (VMS), Fishing Gear Monitoring technology, and Electronic data logging systems were all identified as necessary tools for cooperative research fleets. Additionally, the price of these systems has been reduced due to competition and more efficient production technology.

4. Funding - New England's congressional delegation has been successful in gaining cooperative research funds. This fiscal year there is \$15 million from NMFS which may be allocated over 2-3 years, \$5 million N.E. Consortium, \$1 million in-kind from NMFS. Additionally, there are funds for Right Whale research that will be administered through the N.E. Consortium.

Approach:

Fishery Dependent Data - Study Fleet: A statistical sample (~20%) of representative vessels from the entire fleet operating in "normal fishing mode". Tracking vessels, gather detailed fishing information from individual tows, Study Fleet comprised of special people (vessel captains and owners) who are committed, honest and trained. Incentives: technology, relief from paperwork (VTR), data access

Fishery Independent Data - Industry-Based Survey: A select number of commercial fishing vessels conducting scientifically designed fishing operations for survey purposes. Objectives are to gain greater understanding of closed-area management, identify groundfish migrations, and gain data on fish populations in current voids and at higher resolution. Near-shore and small in beginning. Build on successes. Learn from mistakes. Initially, high spatial and temporal sampling intensity. Shortterm "pilot study" that evolves to longterm time series. Need for professional crew onboard commercial survey vessels. Develop a "mixed design" survey approach where fishermen identify survey sample transects, nontowable areas where fixed gear will be used. In addition to species catch and biological data, get oceanographic and environmental/weather variables.

Both programs- Strong expression that a steering committee is needed to oversee and manage each program, i.e., the study fleet and industry-based survey. This committee will deal mainly with the processes of the two programs and should include representatives from the NMFS, State Marine Resources agencies, New England Fisheries Management Council, nongovernment organizations, and the fishing community. These committees should be small and comprised of individuals who can work together effectively.

Under this steering committee, it is envisioned that several local coordination groups will emerge. These coordination groups will be concerned with the substantive operational issues and should be comprised of NMFS and State DMR field staff, and people from fishing cooperatives, non government organizations, and cooperating commercial vessels' owners/captains. The coordination groups will handle the daily hands-on logistical matters and local management.

Steering Committee Roles- Overarching requirements

1. Organize the planning process and evolve to Oversight Board
2. Oversee the evolution of small groups that manage program at the local level
3. Suggest standardization of methods, data, and reporting
4. Coordinate exempted fishery permit applications and maintenance
5. Manage subgroups (local or “community” groups)
6. Budget and cash flow management

Local Coordination Groups Roles-

1. Local management and coordination of vessels and operations
2. Liason with scientists, steering committee, NMFS (RO and NEFSC)
3. Timing and location of sampling
4. Involvement in the selection and inspection of cooperative research vessels
5. Coordination and maintance of cooperative research equipment and gear

Risks:

Recognize People involved- Important to understand that the participants in the 2 day workshop are not the “average” person that represents their overall fishing community. Thus, it is incumbent that those who participated in this meeting and the “scoping meetings” communicate the progress and messages that were generated at these meetings. We need to “bring along” our colleagues and friends such that we can establish the “buy-in” attitude or an acceptance of this program. This will be the first step in alleviating the “miss trust” among those concerned with the fishery.

Future Funding- Long-term commitments to cooperative research is essential. There is a strong general consensus that this program must be supported financially well into the future.

Fear of Trying-

Needs:

Training, Liason, Coordination (TLC)-

Workshop Participants

<u>Full Name</u>	<u>Organization/Company</u>
Rick Albertson	MFCA
Rodney M. Avila	FFAC
Ralph Boragine	RISC
Carl Bouchard	Commercial Fisherman
Bud Brown	Eco Analysts
Frank Bub	SMASST/UMASS Dartmouth
Vito Calomo	MFRC
Dr. Kevin Chu	Sea Education Association
Rebecca Clauss	NEC
Courtney Coles	Gulf of Maine Aquarium
John Coon	UNH
Steve Correia	MADMF
Jim Davenport	Commercial Fisherman-MFCA
Pat Fiorelli	NEFMC
Tim Forrester	Eco Analysts
David Gallagher	
David Goethel	NEFMC Research Steering Committee
Cliff Goudey	MITSG
Julie Herndon	NAMA
Paul J. Howard	NEFMC Executive Director
Jim Kendall	NB Seafood Consulting
Paul Leeper	Eco Analysts
Dave Lincoln	GF&FAC
Bob MacKinnon	SMASS, University of Massachusetts Dartmouth
David McCarron	TPMC
Gregg Morris	Manomet Center for Conservation Sciences
Arthur Odlin	
Steve Pace	SHIC
Donald W. Perkins, Jr.	Gulf of Maine Aquarium
Dr. David Pierce	Senior Biologist, MA Division of Marine Fisheries
Liz Rowell	RICFA
Becky Rootes	NMFS-S&T
Chip Ryther	CR Environmental, Inc.
Daniel F. Schick	ME Department of Marine Resources
Fred Serchuk	NMFS-NEFSC
Michael Sissenwine	NMFS-NEFSC
Richard Taylor	NEFMC Research Steering Committee
April Valliere	RIDF&W
Proctor Wells	Commercial Fisherman-MFCA
Azure Westwood	CCCHFA
John Williamson	NEFMC Research Steering Committee
John Witzig	NMFS-RO